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EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2633	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/544,662	KAUFFELDT ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2003 and 05 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11* is/are allowed.

6)☒ Claim(s) *1-10 and 12-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-4, 6, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ester et al. (PCT Pub. WO 98/47255).

Regarding claims 1 and 19, Ester et al. discloses in FIG. 7 a WDM protection add/drop multiplexer (ADM). The ADM comprises an optical input terminal (labeled WEST WORKING with an arrow pointing to the right), an optical output terminal (labeled EAST WORKING with an arrow pointing to the right), a plurality of protection input terminals (the arrows pointing to the right in the box labeled PROTECTION WEST), a plurality of protection output terminals (arrows pointing to the right in the box labeled PROTECTION EAST), a plurality of add/drop terminals (labeled EAST TRIBUTARY, equivalent to further terminals), a demultiplexer (labeled INPUT DEMUX AND FILTER), a plurality of switching units (the diagram only show a switching unit for one channel, however, it is understood that similar arrangement can be applied to other channels) and a multiplexer (labeled OUTPUT MUX). The switching unit can be operated to add the east tributary to the optical output signal which is sent to the output terminal.

Regarding claim 3, the switching unit of FIG. 7 includes a third output to WEST TRIBUTARY.

Regarding claim 4, FIG. 7 includes a plurality of drop terminals.

Regarding claim 6, FIG. 7 includes a plurality of add terminals each of which is coupled to a third input of the switching unit.

Regarding claim 16, the structure of each multiplexing unit of the claim is similar to that of claim 1 and has been discussed above. In addition, Ester et al. suggests in FIG. 1 and page 1, lines 6-9 that a plurality of such ADMs can be connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

3. Claims 1, 3-4, 6, 16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson (U.S. Patent 6,249,510 B1).

Regarding claims 1 and 19, Thompson discloses in FIG. 2 a WDM protection add/drop multiplexer (ADM). The ADM comprises an optical input terminal 22, an optical output terminal 21, a plurality of protection input terminals, a plurality of protection output terminals 24-1, a plurality of add/drop terminals 60-1 and 60-2, a demultiplexer 15-2, a plurality of switching units 50-1 to 50-N and a multiplexer 25-2. The switching unit can be operated to add the optical signal λ_1 to the optical output signal which is sent to the output terminal 21.

Regarding claim 3, the switching unit includes a third output 60-2,

Regarding claim 4, FIG. 2 includes a plurality of drop terminals λ_1 to λ_N.

Regarding claim 6, FIG. 2 includes a plurality of add terminals λ_1 to λ_N.

Regarding claim 16, the structure of each multiplexing unit of the claim is similar to that of claim 1 and has been discussed above. In addition, Thompson suggests in FIG. 1 that a plurality of such ADMs can be connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2, 5, 7, 9-10, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (U.S. Patent 6,249,510 B1) in view of Meli (U.S. Patent 5,956,319).

Thompson has been discussed above in regard to claims 1, 3-4, 6, 16 and 19. The difference between Thompson and the claimed invention is the structure of the switching unit. The channel switching unit of Thompson has three inputs and three outputs for the purpose of add/drop and protection of the channel. It consists of four 1x3 switches and two 1x2 switches. Meli teaches in FIG. 2 a switching unit, consisting of five 2x2 switches, for add/drop and protection, which is equivalent to the switching unit of Thompson. The first and second inputs of switch 22 of FIG. 2 of Meli are coupled to the working and protection inputs, and its first and

second outputs are coupled to the working output and protection output. One of ordinary skill in the art would have been motivated to combine the teaching of Meli with the WDM protection ADM of Thompson because the switching unit of Meli has less number of switches and uses one kind of switches. This simplifies the design, manufacturing and maintenance of the switching unit. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the switching unit in the ADM of Thompson with the switching unit of Meli because it has less number of switches and uses one kind of switches, and therefore is simpler in design and easier to manufacture and maintain.

6. Claim 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ester et al. (PCT Pub. WO 98/47255) in view of Cao (U.S. Patent 6,337,755 B1) and Arecco (U.S. Patent 6,400,476 B1).

Ester et al. has been discussed above in regard to claims 1, 3-4, 6, 16 and 19. The difference between Ester et al. and the claimed invention is that Ester et al. does not include regenerators and transponders in the ADM. Cao teaches in FIG. 1 the use of regenerators to reduce the noise accumulated in the transmission system. One of ordinary skill in the art would have been motivated to include the teaching of Cao in the ADM of Ester et al. because the regenerators reshape the digital signal and allow for transmission of data over long distance. Arecco teaches in FIG. 2 the use of transponders to convert the optical signal from the transmitters to an appropriate wavelength for combining with the other channels of the WDM system. One of ordinary skill in the art would have been motivated to include the teaching of Arecco in the ADM of Ester et al. because a transponder can bridge incompatible facilities. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made

to include regenerators, as taught by Cao, and transponders, as taught by Arecco, in the protection ADM of Ester et al. because regenerators reduce transmission noise and transponders allow the interconnection of incompatible facilities.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ester et al. (PCT Pub. WO 98/47255) in view of Arecco et al. (U.S. Patent 5,903,371).

Ester et al. has been discussed above in regard to claims 1, 3-4, 6, 16 and 19. The difference between Ester et al. and the claimed invention is that Ester et al. does not include an optical coupling section. Arecco et al. teaches in FIG. 2 an optical ADM with optical coupler 31 and 43. Coupler 31 is between the input terminal and the input of the ADM for dropping a selective component signal. Coupler 43 is between the output terminal and the output of the ADM for adding a selective component signal. One of ordinary skill in the art would have been motivated to combine the teaching of Arecco et al. with the optical ADM of Ester et al. because it is desirable to receive and interpret the telemetry signal to control the switching unit. It is also desirable to add the telemetry at the output terminal to include management information such as quality measurements of optical signal in the telemetry channel. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include couplers at the input terminal and output terminal for dropping and adding telemetry channels, as taught by Arecco et al., in the protection ADM of Ester et al. because the incoming telemetry channel may contain information for controlling the switching unit setting and the outgoing telemetry channel may contain quality measurements of optical signal.

8. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (U.S. Patent 6,249,510 B1) in view of Arecco et al. (U.S. Patent 5,903,371).

Thompson discloses in FIG. 2 a network node comprising a demultiplexer 15-1, a multiplexer 25-1 and a plurality of switches 30-2 (FIG. 2 only shows one switch for one wavelength channel, however, it is understood that similar channel switches are used for other wavelength channels in a WDM system). The difference between Thompson and the claimed invention is that Thompson does not teach a splitter for dropping a channel. Arecco et al. teaches in FIG. 2 to drop a telemetry channel via an optical coupler 32. A telemetry channel includes a plurality of components for various network management functions such as alarms, performance, wavelength channel assignment, etc. One of ordinary skill in the art would have been motivated to combine the teaching of Arecco et al. with the network node of Thompson because telemetry channel contains management information for the node such as information for reconfiguring the node for channel protection switching. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a optical coupler for dropping a telemetry channel, as taught by Arecco et al., in the network node of Thompson because telemetry channel contains management information for the node such as information for reconfiguring the node for channel protection switching.

Regarding claim 22, Arecco et al. also teaches a coupler 44 for adding a telemetry channel to the output terminal of the node.

Allowable Subject Matter

9. Claim 11 is allowed.

Response to Arguments

10. Applicant's arguments filed 15 October 2003 have been fully considered but they are not persuasive.

The Applicant argues that the Office Action cites no teaching of Ester and Thompson for the limitation "causing one of the component signals from the optical input terminal to be routed to said further terminal, and causing a component signal present at said further terminal to be included in the optical output terminal". Based on the amendment, the Examiner adds the wordings "is sent to the output terminal" to the rejections.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (a) Fatehi et al. (U.S. Patent 6,519,064 B1) teaches in FIG. 8 to use splitter/coupler for adding and dropping channels and in FIG. 9 protection switching. (b) Egnell et al. (U.S. Patent 6,590,681 B1) teaches in FIG. 3 to use splitter/coupler for adding and dropping wavelength channels.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

skl

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